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Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

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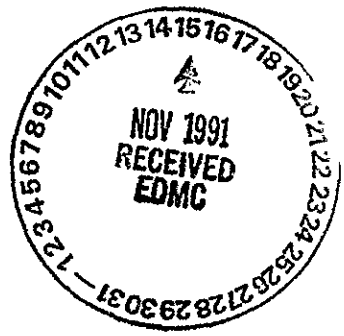
91-EAB-309

OCT 25 1991



Mr. Rick Poeton
U.S. Environmental Protection Agency
Region 10
1200 Sixth Avenue
Seattle, Washington 98101

Dear Mr. Poeton:

HANFORD WASTE VITRIFICATION PLANT

In May 1990, the Hanford Waste Vitrification Plant (HWVP) Clean Air Act Permit Application was submitted to the U.S. Environmental Protection Agency (EPA) for review and approval under the National Emission Standards for Hazardous Air Pollutants (NESHAPs) regulations. Construction of the HWVP would constitute construction of a new stationary source subject to the standard for radionuclide emissions. Since submittal of the HWVP application, EPA has attended several meetings on the proposed new source. However, EPA has not provided approval or any indication of the status of its review of the May 1990 application.

The HWVP will be constructed over an approximately nine-year period (Enclosure 1). Detailed design will not be complete before construction activities begin. In fact, frequent design modifications will likely occur throughout the construction period. Construction activities will be undertaken in several phases. Phase I activities (Enclosure 2) are scheduled to commence in April 1992. Approval of Phase I activities was provided by the State of Washington Department of Health (DOH) on June 25, 1991, (Enclosure 3). The purpose of this letter is to request a formal reply from the EPA regarding the status of its approval of the May 1990 HWVP application.

As of the May 1990 NESHAPs application, the maximum potential offsite dose impact that could result from routine radioactive emissions from HWVP was calculated to be 0.0084 millirem per year, effective dose equivalent. This calculated dose impact, in combination with expected Hanford Site emissions, would represent a very minor impact compared to the regulatory standard of 10 millirem per year. Since May 1990, significant engineering design changes have been made to the HWVP, including the deletion of one stack and the rerouting of airflow through some structural areas of the Vitrification Building. However, the potential offsite dose impact reported in the May 1990 application still bounds the dose that could result from routine operation of a vitrification plant built to the modified design. In addition, it is extremely unlikely that any future design modifications would result in an increased dose impact from routine HWVP operations or in any major design changes reducing the effectiveness of the proposed containment system.

The DOE Field Office, Richland, will gladly respond to any questions or concerns relative to this transmittal. In order to support initiation of actual Phase I activities in April 1992, it is anticipated that all necessary approvals must be in place by January 1992. To support progress on construction of an important Hanford Site cleanup unit, a timely reply to this transmittal is requested. Pertinent questions may be addressed to Mr. S. D. Stites of my staff on (509)376-8566.

Sincerely,

E. A. Bracken

E. A. Bracken, Director
Environmental Restoration Division

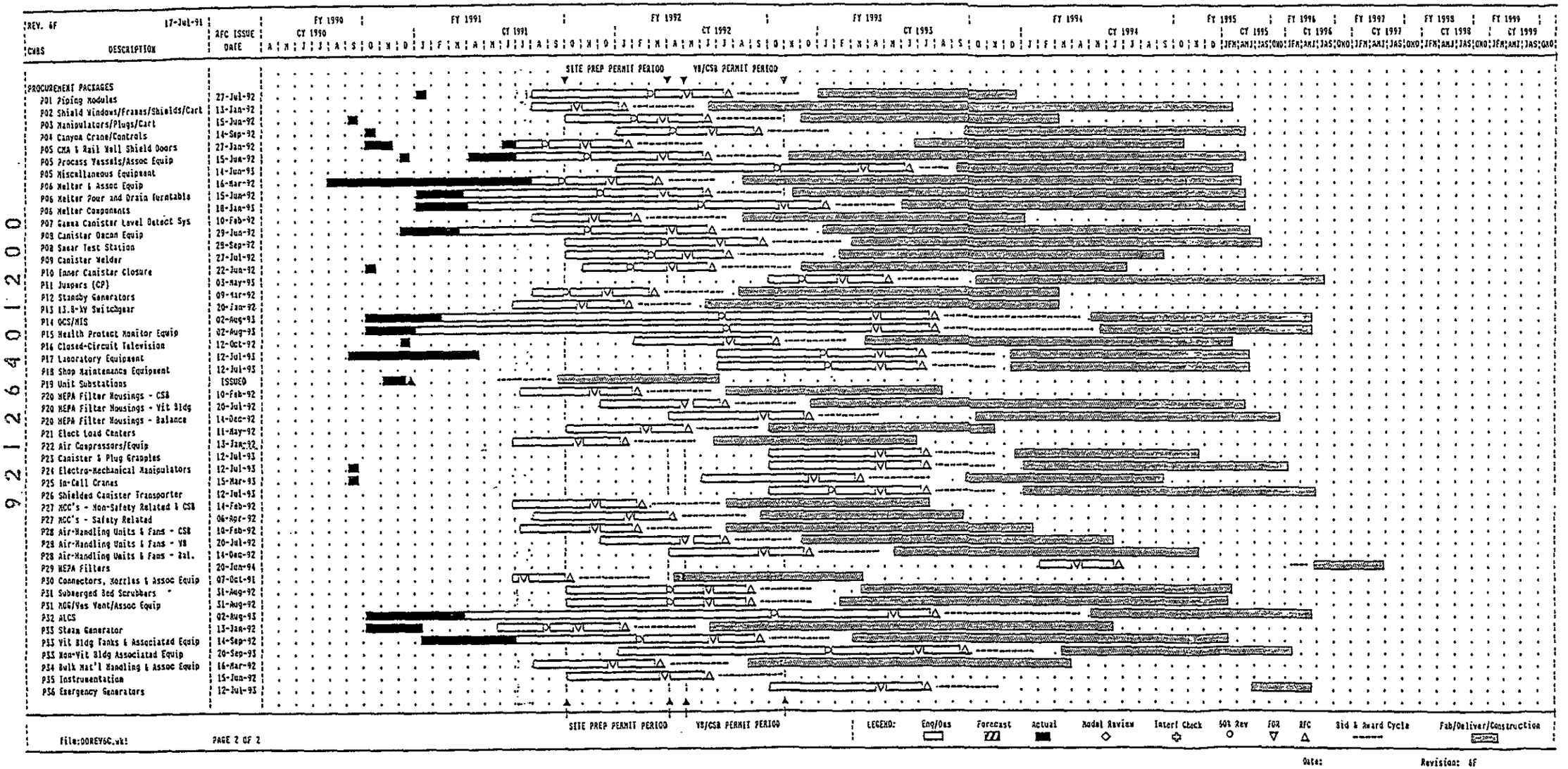
Enclosures:
1. HWVP Detailed Design Baseline Summary Schedule
2. HWVP Site Preparation - DOE/RL-89-02, Rev. 2
3. DOH Approval of Phase I Activities

cc w/encls:
A. W. Conklin, DOH
J. P. Cooke, APCA
P. T. Day, EPA
T. Le, Ecology
R. E. Lerch, WHC
R. W. Oldham, WHC

Enclosure 1

DRAFT 07/17/91

HWVP DETAILED DESIGN BASELINE SUMMARY SCHEDULE (1999 HOT START-UP BASIS)



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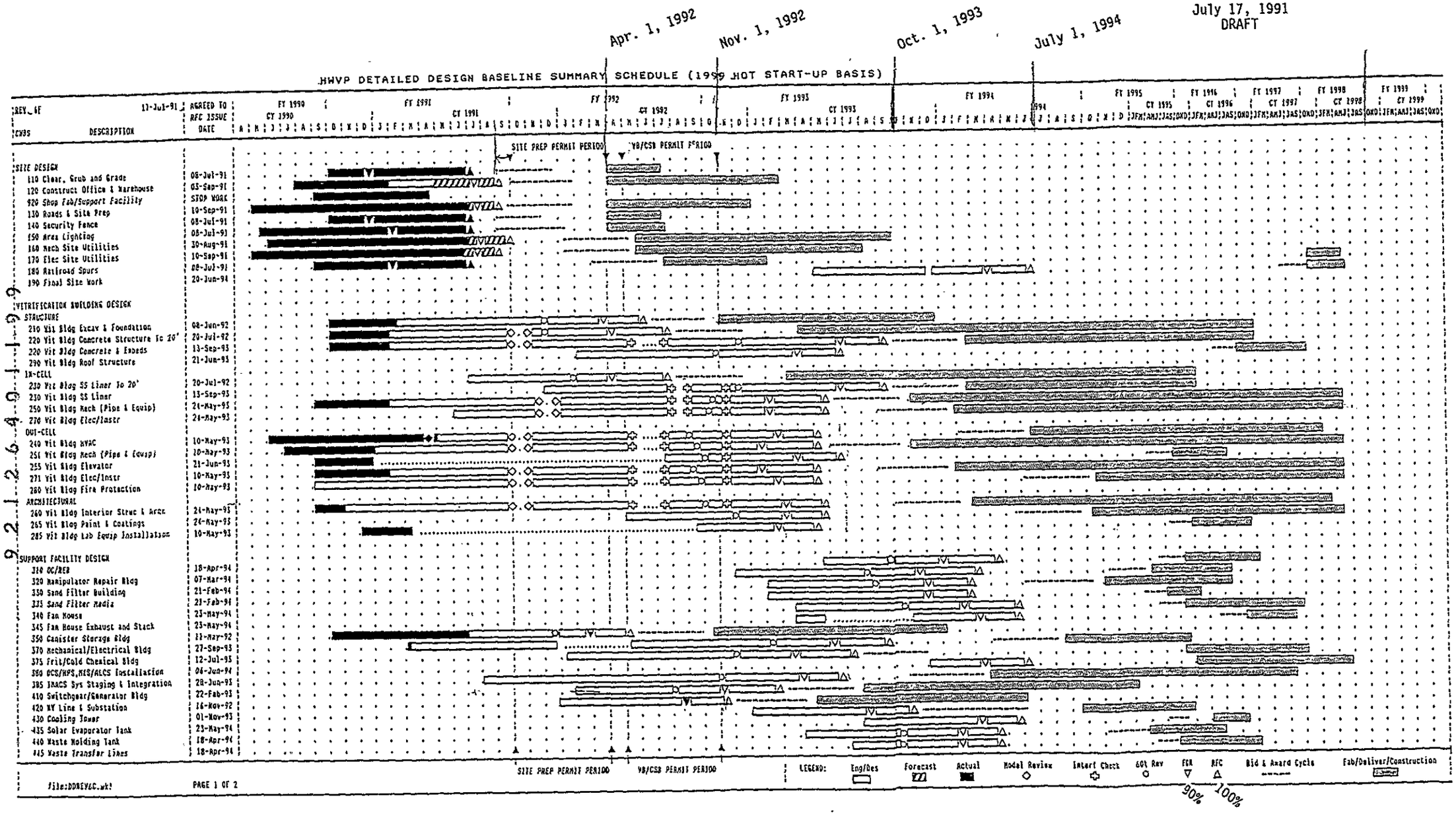
Apr. 1, 1992
Nov. 1, 1992
Oct. 1, 1993
July 1, 1994
July 17, 1991
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HWVP DETAILED DESIGN BASELINE SUMMARY SCHEDULE (1999 HOT START-UP BASIS)
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11-Jul-91
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DESCRIPTION
AGREED TO RFC ISSUE DATE
FY 1990
CY 1990
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CY 1996
FY 1997
CY 1997
FY 1998
CY 1998
FY 1999
CY 1999
SITE PREP PERMIT PERIOD
VB/CSB PERMIT PERIOD
SITE DESIGN
110 Clear, Grub and Grade
120 Construct Office & Warehouse
920 Shop Fab/Support Facility
130 Roads & Site Prep
140 Security Fence
150 Area Lighting
160 Mech Site Utilities
170 Elec Site Utilities
180 Railroad Spurs
190 Final Site Work
VITRIFICATION BUILDING DESIGN
STRUCTURE
210 Vit Bldg Excav & Foundation
220 Vit Bldg Concrete Structure To 20'
220 Vit Bldg Concrete & Embeds
290 Vit Bldg Roof Structure
IN-CELL
230 Vit Bldg SS Liner To 20'
230 Vit Bldg SS Liner
250 Vit Bldg Mech (Pipe & Equip)
270 Vit Bldg Elec/Instr
OUT-CELL
240 Vit Bldg HVAC
250 Vit Bldg Mech (Pipe & Equip)
255 Vit Bldg Elevator
270 Vit Bldg Elec/Instr
280 Vit Bldg Fire Protection
ARCHITECTURAL
260 Vit Bldg Interior Struc & Arch
265 Vit Bldg Paint & Coatings
285 Vit Bldg Lab Equip Installation
SUPPORT FACILITY DESIGN
310 OC/REB
320 Manipulator Repair Bldg
330 Sand Filter Building
335 Sand Filter Media
340 Fan House
345 Fan House Exhaust and Stack
350 Canister Storage Bldg
370 Mechanical/Electrical Bldg
375 Frit/Cold Chemical Bldg
380 DCS/HPS,MES/ALCS Installation
385 IRACS Sys Staging & Integration
410 Switchgear/Generator Bldg
420 HV Line & Substation
430 Cooling Tower
435 Solar Evaporator Tank
440 Waste Holding Tank
445 Waste Transfer Lines
08-Jul-91
03-Sep-91
STOP WORK
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01-Nov-93
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18-Apr-94
18-Apr-94
SITE PREP PERMIT PERIOD
VB/CSB PERMIT PERIOD
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Eng/Des
Forecast
Actual
Modal Review
Intert Check
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FER
RFC
Bid & Award Cycle
Fab/Deliver/Construction
90%
100%
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PAGE 1 OF 2

Enclosure 2

APPENDIX 4B

HANFORD WASTE VITRIFICATION PLANT SITE PREPARATION

CONTENTS

APPENDIX 4B

HANFORD WASTE VITRIFICATION PLANT SITE PREPARATION

The information presented in this appendix supports the issuance of a Dangerous Waste Permit for HWVP site preparation activities. The following site preparation activities are addressed:

- Site plans, site grading, and construction support facilities (6370 - General Arrangement Drawings)
- Clearing, grubbing, and grading (A110)
- Road construction and site preparation (A130)
- Security fence installation (A140)
- Security lighting installation (A150)
- Installation of mechanical site utilities (A160)
- Installation of electrical utilities (A170)
- Construction of railroads (A180)
- Unit Substation Procurement (P19).

The site preparation activities are organized by construction packages (A110, A130, A140, A150, A160, A170, A180) and a procurement package (P19). A brief discussion of each activity is presented in Sections 4B-1 through 4B-9, along with a list of HWVP detailed design drawings and specifications pertaining to each activity. The construction and procurement packages are at 90 percent completion, and are subject to change until such time that the packages are 100 percent complete and issued for bids. The 90 percent complete packages have been forwarded to Ecology and the EPA to support permit development. As the packages are completed, copies will be provided to Ecology and the EPA to support public review.

4B-1 SITE PLANS, SITE GRADING, AND CONSTRUCTION SUPPORT FACILITIES (6370 - GENERAL ARRANGEMENT DRAWINGS)

This construction package contains general arrangement detailed design drawings for the HWVP. The drawings consist primarily of site plans and building layouts for construction support facilities and final facilities. The drawings include paving plans for construction support facilities, site layout and utility plans for construction support facilities, and grading and utility plans for final facilities. Although the drawings show building layouts, the buildings will not be constructed until a later phase of construction authorized by a future permit modification.

Structures to be built in support of the HWVP construction are as follows:

- Security gatehouse
- Perimeter security double swing access gates
- HWVP perimeter fencing and lighting
- Construction parking lot
- Construction laydown yards
- Government Furnished Equipment Warehouses
- Fabrication Shop
- Contractors' office trailers
- Construction Management Office (Operation Annex Building)
- Temporary Construction Office Building
- Receiving and Storage Building
- Railroad spur.

Of these structures, the security gatehouse, double swing gates, construction parking lot, and contractors' office trailers will be temporary structures. The remaining structures will be permanent. Existing structures located near the HWVP site include a section of the 200 East Area perimeter security fence, two 0.61-meter (24-inch) concrete export water lines, an east-west transfer line, two crib sites (216-B-55 Crib and 216-B-12 Crib), and a section of the Hanford Site railroad. The Government Furnished Equipment Warehouses, Fabrication Shop, Construction Management Office (Operation Annex Building), Temporary Construction Office Building, and Receiving and Storage Building will be structural steel buildings set on concrete foundations.

Additional information pertaining to the dimensions, locations, and erection of construction support structures is provided in the general arrangement drawings listed below.

H-2-117100	Final Site Plans Title Sheet	Rev. 2
H-2-117101	Final Site Plan Drawing Index	Rev. 2
H-2-117102	Final Site Plans Legend Abbreviations Index and General Notes	Rev. 2
H-2-117103	Overall Final Site Finish Paving Plan	Rev. 2
H-2-117104	Final Site Grading and Utilities Plan	Rev. 2
H-2-117105	Final Site Grading and Utilities Plan	Rev. 2
H-2-117106	Final Site Grading and Utilities Plan	Rev. 2
H-2-117107	Final Site Grading and Utilities Plan	Rev. 2
H-2-117108	Final Site Grading and Utilities Plan	Rev. 3
H-2-117109	Final Site Grading and Utilities Plan	Rev. 3
H-2-117110	Final Site Grading and Utilities Plan	Rev. 2
H-2-117111	Final Site Grading and Utilities Plan	Rev. 2
H-2-117112	Final Site Grading and Utilities Plan	Rev. 2
H-2-117113	Final Site Grading and Utilities Plan	Rev. 2
H-2-117114	Final Site Grading and Utilities Plan	Rev. 2
H-2-117115	Final Site Grading and Utilities Plan	Rev. 3
H-2-117120	Final Site Sections and Details	Rev. 2
H-2-117121	Final Site Sections and Details	Rev. 2
H-2-117200	Construction Support Facilities Title Sheet	Rev. 2
H-2-117201	Construction Support Facilities Drawing Index	Rev. 2
H-2-117202	Construction Support Facilities Legend Abbreviations Index and General Notes	Rev. 2
H-2-117203	Overall Construction Support Facilities Paving Plan	Rev. 2
H-2-117204	Construction Support Facilities Site Layout and Utilities Plan	Rev. 2
H-2-117205	Construction Support Facilities Site Layout and Utilities Plan	Rev. 2
H-2-117206	Construction Support Facilities Site Layout and Utilities Plan	Rev. 2
H-2-117207	Construction Support Facilities Site Layout and Utilities Plan	Rev. 2

1	H-2-117208	Construction Support Facilities Site Layout and Utilities Plan	Rev. 2
2	H-2-117209	Construction Support Facilities Site Layout and Utilities Plan	Rev. 2
3	H-2-117210	Construction Support Facilities Site Layout and Utilities Plan	Rev. 2
4	H-2-117211	Construction Support Facilities Site Layout and Utilities Plan	Rev. 2
5	H-2-117212	Construction Support Facilities Site Layout and Utilities Plan	Rev. 2
6	H-2-117213	Construction Support Facilities Site Layout and Utilities Plan	Rev. 2
7	H-2-117214	Construction Support Facilities Site Layout and Utilities Plan	Rev. 2
8	H-2-117215	Construction Support Facilities Site Layout and Utilities Plan	Rev. 2
9	H-2-117220	Construction Support Facilities Sections and Details	Rev. 2
10	H-2-117221	Construction Support Facilities Sections and Details	Rev. 2
11			

4B-2 CLEARING, GRUBBING, AND GRADING (A110)

This construction package contains the drawings and technical requirements for the clearing, grubbing, and grading of the HWVP site. Specifically, the package addresses the following activities:

- Removal and disposal of portions of existing roads on the HWVP site
- Removal and disposal of all brush, roots, and other objects resting on or protruding through the surface of the designated clearing and grubbing areas
- Grading and compaction of the fence line area and temporary construction parking/trailer area
- Installation of crushed rock surfacing.

Clearing will consist of removing all unwanted material from the site surface to provide for site access and execution of work. Material to be removed will include a minimum of 15 centimeters (6 inches) of top soil and all vegetation, snags, brush, rubbish and refuse from the area designated on the contract drawings. In addition, soil will be removed a minimum of 15 centimeters (6 inches) below any refuse material that is cleared.

Grubbing will consist of the excavation and removal of all roots and vegetation, together with organic and metallic debris, rubbish, and refuse. Soil will be removed a minimum of 15 centimeters (6 inches) below the bottom-most indication of any refuse material to be grubbed. The sides of any excavation made for the purposes of grubbing will be blended into the surrounding area such that no slope will be steeper than 1 vertical to 3 horizontal.

After clearing and grubbing have been completed, all debris, rock, brush, grass, and other material from the clearing and grubbing operations will be moved to a designated disposal site.

Clearing and grubbing work will be followed by grading, soil removal, replacement, and compaction. Grading will be performed to the lines and grades specified in the contract drawings. Cut material either will be placed in fill areas or disposed of. Fill material will be uniformly distributed, and fill for general grading will be placed in loose layers of 20.3 to 30.5 centimeters (8 to 12 inches). Fill material will be moisture conditioned to within plus or minus 2 percent of the optimum moisture content. The fill for general grading will be compacted to 90 percent of the maximum dry density. Compaction will be accomplished by heavy vibratory compaction equipment.

Following compaction and grading, crushed rock surfacing will be installed to the lines and gradients shown on the drawings for the fence line area and the temporary construction parking/trailer area. The material for the crushed rock surfacing will consist of crushed or partially crushed stone. The crushed rock will be spread over the prepared subgrade, to a

total compacted thickness shown on the contract drawings. Surfaces will be leveled and contoured to the elevations and gradients specified on the contract drawings, and the crushed rock will be compacted to 95 percent of its maximum dry density.

Additional information pertaining to clearing, grubbing, and grading is provided in the following HWVP detailed design drawings and specifications.

Drawings

H-2-117002	Civil Clearing, Grubbing, Grading Title Sheet	Rev. 0
H-2-117003	Civil Clearing, Grubbing, Grading Drawing Index	Rev. 0
H-2-117004	Civil Clearing, Grubbing, Grading Information Sheet	Rev. 0
H-2-117005	Civil Clearing, Grubbing, Grading North Area Plan	Rev. 0
H-2-117006	Civil Clearing, Grubbing, Grading South Area Plan	Rev. 0
H-2-117007	Civil Clearing, Grubbing, Grading Sections & Details	Rev. 0

Specification

B-595-C-A110	Clearing, Grubbing, and Grading	Rev. 0

4B-3 ROAD CONSTRUCTION AND SITE PREPARATION (A130)

This construction package contains the drawings and technical requirements for the construction of roads and for the general preparation of the HWVP site. Specifically, the package addresses the following items:

- Locations of new and existing roads, railroads, and the storm water drainage system
- Materials and equipment
- Grading in support of roads, railroads, storm water drainage ditches, and the overall site
- Excavation, backfill, and compaction for the installation of the concrete headwalls, catch basins, and underground culverts (that are part of the storm water drainage system) and concrete protection for the existing .61-meter (24-inch) export water lines
- Installation of the aggregate base course and crushed rock surfacing for roads and the designated parking area
- Installation of asphaltic concrete paving and seal coating for roads
- Construction of the storm water drainage system
- Installation of shotcrete for the storm water drainage system
- Field inspection requirements.

The following provides a discussion of the roads and storm water drainage system to be constructed in support of the HWVP.

The specific roads that will be used to transport hazardous substances and dangerous waste have not been identified. For the purposes of this permit application, it is assumed that all site access roads will have the potential for transporting hazardous substances and dangerous waste. Therefore, a general discussion of the roads to be constructed in support of the HWVP is provided.

Paved and unpaved roads, including an 853-meter (2,800-foot) long perimeter road, will be constructed to provide access to the HWVP and to individual buildings within the HWVP. These roads will provide adequate all-weather access to the HWVP. Paved parking areas for HWVP personnel also will be provided.

During construction, access will be provided via a dedicated existing corridor that intersects the 100 Area access highway west of the HWVP site. Existing paved roads will provide satisfactory all-weather access during most of the construction phase and during operation.

During construction of asphaltic concrete paved roads, a graded aggregate base course will be constructed on a prepared subgrade. The base course will be formed by layering base course material to achieve uniform thickness, ranging from 7.6 to 15 centimeters (3 to 6 inches) for any compacted layer. A specified prime coat will be applied and allowed to dry, followed by the delivery of bituminous pavement. The bituminous pavement will be spread and struck off, and each course will be thoroughly and uniformly compacted by rolling.

Design of the HWVP storm water drainage system is based on the 25-year storm, with a storm duration of 6 hours. Under the current design, storm water drainage will be provided by shotcrete-lined ditches located on both sides of the HWVP perimeter fence. The ditches will encircle most of the HWVP site, with the exception of approximately 121.9 meters (400 feet) along the northwest side. The drainage ditches outside the HWVP perimeter fence will be in place throughout construction. The drainage ditches inside the HWVP perimeter fence will be installed following construction of major plant buildings. This approach will prevent the ditches within the HWVP fenced area from being washed out during building construction.

The drainage ditches outside the HWVP perimeter fence will consist primarily of shotcrete-lined trapezoidal ditches, located approximately 6.1 meters (20 feet) from the HWVP perimeter fence. The lined trapezoidal ditches will have a side slope of 2.5 to 1 (horizontal to vertical), which will transition to a side slope of 1.5 to 1 at headwalls. A total of two storm water dissipators will be employed at various discharge outlets.

Additional information pertaining to the construction of roads and general site preparation is provided in the following HWVP detailed design drawings and specifications.

Drawings

H-2-117010	Civil Roads & Site Preparation Title Sheet	Rev. C
H-2-117011	Civil Roads & Site Preparation Drawing Index	Rev. C
H-2-117012	Civil Roads & Site Preparation Information Sheet	Rev. C
H-2-117013	Civil Roads & Site Preparation Plan	Rev. C
H-2-117014	Civil Roads & Site Preparation Plan	Rev. C
H-2-117015	Civil Roads & Site Preparation Plan	Rev. C
H-2-117016	Civil Roads & Site Preparation Plan	Rev. C
H-2-117017	Civil Roads & Site Preparation Plan	Rev. C
H-2-117018	Civil Roads & Site Preparation Plan	Rev. C
H-2-117019	Civil Roads & Site Preparation Plan	Rev. C
H-2-117021	Civil Roads & Site Preparation Plan	Rev. C
H-2-117022	Civil Roads & Site Preparation Plan	Rev. C
H-2-117023	Civil Roads & Site Preparation Plan	Rev. C
H-2-117024	Civil Roads & Site Preparation Plan	Rev. C
H-2-117026	Civil Roads & Site Preparation Plan	Rev. C

1	H-2-117027	Civil Highway Turnout Site Preparation Detail	Rev. C
2	H-2-117028	Civil Site Preparation Striping & Signage Details	Rev. C
3	H-2-117029	Civil Site Preparation Sections & Details	Rev. C
4	H-2-117030	Civil Site Preparation 7th Street Extension Plan & Profile	Rev. C
5	H-2-117031	Civil Site Preparation Construction Road Detail	Rev. C
6	H-2-117032	Civil Site Preparation Sections and Details	Rev. C
7	H-2-117033	Civil Site Preparation Sections and Details	Rev. C
8	H-2-117034	Civil Site Preparation Sections and Details	Rev. C
9	H-2-117035	Civil Site Preparation Surfacing Plan	Rev. C
10		**Specification**	
11	B-595-C-A130	Roads & Site Preparation	Rev. A
12			

4B-4 SECURITY FENCE INSTALLATION (A140)

This construction package contains the drawings and technical requirements for the installation of steel chain link security fencing surrounding the HWVP site. Specifically, the package addresses the following items:

- Location of new and existing security fencing
- Materials and equipment to be used in security fence installation
- Setting of fence posts
- Bracing of fence posts
- Installation of tension wires
- Attachment and stretching of fence fabric
- Attachment of barbed wire
- Installation of gates
- Locations of bolt heads
- Grounding of fences
- Repair of damaged zinc coatings.

During construction, a steel chain link security fence meeting the requirements for limited area access will be installed around the HWVP site. The fence fabric will consist of 5 centimeter (2 inch) woven diamond mesh, chain link standard commercial grade galvanized steel wire. The top and bottom edges of the fabric will have a twisted and barbed finish. The total height of the fence will be 2.1 meters ± 2.5 centimeters (7 feet ± 1 inch). The fence will be provided with security lighting, and a security access road will lie on each side of the fence. The fence will exclude the HWVP construction site from the remainder of the 200 East Area. Construction personnel will enter the HWVP site through temporary gates installed in the existing 200 East Area perimeter fence.

To control passage between the 200 East Area and the HWVP site during construction, three 6.1-meter (20-foot) double swing gates will be installed along the construction fence. On completion of construction, the original 200 East Area perimeter fence will be restored, and access to the HWVP will occur through the existing 200 East Area security gates. The construction fence will remain, but the gates will remain open.

Additional information pertaining to the installation of security fencing is provided in the following HWVP detailed design drawings and specifications.

Drawings

H-2-117050	Civil Security Fence Title Sheet	Rev. 0
H-2-117051	Civil Security Fence Drawing Index	Rev. 0
H-2-117052	Civil Security Fence Information Sheet	Rev. 0
H-2-117053	Civil Security Fence Plan North Area	Rev. 0
H-2-117054	Civil Security Fence Plan South Area	Rev. 0
H-2-117055	Civil Security Fence Sections and Details	Rev. 0
H-2-117056	Civil Security Fence Grounding Details	Rev. 0

Specification

B-595-C-A140	Security Fence	Rev. 0

4B-5 SECURITY LIGHTING INSTALLATION (A150)

This construction package contains the drawings and technical requirements for the installation of security lighting around the HWVP site. Specifically, the package addresses the following items:

- Location of new and existing security lighting
- Materials and equipment to be used in security lighting installation
- Installation of fastenings
- Grounding of electrical equipment
- Installation of area security lighting
- Acceptance testing and inspection procedures for electrical components.

Security lighting at the HWVP will consist of low pressure sodium lamps, mounted on steel poles and fed with direct burial cable. The sodium light fixtures will be installed along the HWVP perimeter fence, along plant roadways, and in parking lots. The existing security lighting along the west section of the 200 East Area security fence will be used as is for providing illumination along the site west boundary.

Additional information pertaining to the installation of area security lighting is provided in the following HWVP detailed design drawings and specifications.

	Drawings	
H-2-122050	Area Security Lighting Title Sheet	Rev. 0
H-2-122051	Area Security Lighting Drawing Index	Rev. 0
H-2-122052	Electrical General Notes, Symbols, and Fence Lighting Details	Rev. 0
H-2-122054	Electrical Fence Lighting Plan North Site Area	Rev. 0
H-2-122055	Electrical Fence Lighting Plan South Site Area	Rev. 0
H-2-118000	Structural Area Security Lighting Foundation Details	Rev. 0
	Specification	
B-595-C-A150	Area Security Lighting	Rev. 0

4B-6 INSTALLATION OF ELECTRICAL UTILITIES (A160)

This construction package contains the drawings and technical requirements for the installation of mechanical site utilities in support of the HWVP. Mechanical site utilities to be installed include the sanitary sewer and septic system, sanitary water system, fire protection water system, and associated electrical utilities. Specifically, the package addresses the following items:

- Operation and maintenance data for mechanical site utility equipment
- Excavation, backfill, and compaction for the installation of mechanical site utilities
- Installation of cast-in-place concrete and reinforcing steel in support of mechanical site utilities
- Welding conducted in support of mechanical site utility installation
- Structural steel used in the installation of mechanical site utilities
- Location of new and existing mechanical site utilities
- Materials and equipment to be used in the installation of mechanical site utilities
- Installation of sanitary sewer and septic system
- Installation of steel chain link fencing around the leach field
- Installation of mechanical site utilities
- Acceptance testing and inspection procedures for mechanical site utilities.

A discussion of the sanitary sewer and septic system, sanitary water system, fire protection water system, and associated electrical utilities to be installed in support of the HWVP is provided in the following paragraphs.

An underground sanitary sewer system will serve the HWVP during site preparation activities and throughout HWVP operations. The sanitary sewer lines will be designed to an average daily flow of 37,850 liters (10,000 gallons) per shift during construction, or 75.7 liters (20 gallons) per minute.

The sanitary sewer system will operate under gravity flow, with a minimum flow velocity of 0.61 meters (2 feet) per second at the peak diurnal flow. Maximum flow velocity will be 3.04 meters (10 feet) per second at the extreme peak flow. The sewer system will have a minimum slope of 0.005 to

provide the required minimum velocities and depths of cover, and the sewer line will have a minimum cover of 0.762 meter (30 inches). Manholes will be installed at least every 121.9 meters (400 feet).

The installation of the sanitary sewer system will begin with the excavation of pipe trenches, followed by the addition of uniform pipe bedding along the entire length of pipe. Pipe will be laid by proceeding upgrade, with the pipe spigot ends pointing in the direction of flow. Once the pipe is laid, the trenches will be cleaned and partially backfilled, with joints left exposed for hydrostatic testing. Hydrostatic testing will be performed to detect any leaks in the system. If leakage exceeds the maximum amount specified, corrections will be made, followed by retesting, until the system meets specifications. Final testing of the system will be performed after complete construction of the sanitary sewer.

The sanitary sewer system will collect and transport sanitary waste from the various buildings and construction facilities to a septic system. The septic system, including a septic tank, dosing tank with dual siphons, transport line, manifold, laterals and leach field, will be constructed to support the HWVP during site preparation activities and throughout HWVP construction. The septic system will be located northeast of the government furnished equipment storage yard. The septic tank will be sized to a capacity of 1.5 times the daily maximum design flow of 37,850 liters (10,000 gallons) per day. The minimum required tank capacity is 56,775 liters (15,000 gallons); however, a septic tank with a capacity of approximately 76,124 liters (20,108 gallons) will be provided. The dimensions of the tank will be 12.8 meters (42 feet) long by 2.44 meters (8 feet) wide by 2.4 meters (8 feet) high. Assuming a water depth of 1.8 meters (6 feet) in the tank, the operating volume of the tank will be 57,078 liters (15,080 gallons). The septic tank will be vented and will be constructed of reinforced concrete.

In addition to the septic tank, a dosing tank will be provided with a dosing volume of 11,325 liters (3,000 gallons). The dosing tank will transport a specific volume of effluent from the septic tank to the distribution network. The sewage will enter the leach field via perforated piping.

The leach field, which will be fenced, will have an area of approximately 4,496 square meters (48,400 square feet). The allowable sewage absorption in the leach field will be 326 liters per day per square meter (0.8 gallon per day per square foot), based on the soil type (fine sand and silt) in the leach field and on the daily maximum flow of 37,850 liters (10,000 gallons) per day.

The HWVP sanitary water system will have a capacity of 3,028 liters (800 gallons) per minute during site preparation activities and will serve approximately 1,000 people per day. Sanitary water will be pumped to the HWVP via a new underground pipeline, which will form a loop around the plant. The pipeline will tie into existing sanitary water mains at two locations. One pipeline will tie into an existing sanitary water main in the 200 East Area near B Plant, and the other will tie into an existing

sanitary water main north of 4th Street. On completion of site preparation activities, additional sanitary lines will be installed to feed the individual HWVP buildings.

The HWVP fire protection water system will have a capacity of 4,542 liters (1,200 gallons) per minute during site preparation and eventually will be expanded to greater than 7,570 liters (2,000 gallons) per minute. Water for fire protection will be supplied from the 200 East Area raw water system. Raw water will be pumped to the HWVP via a new underground pipeline that will tie into existing raw water mains at two locations (one at B Plant and one north of 4th Street). During site preparation, a raw water loop will be installed around the plant and will be supplied by the two incoming lines. The incoming raw water line will be supplied by the two incoming lines. The incoming raw water line from B Plant will have two redundant fire booster pumps to provide adequate pressure on the plant raw water loop. The new underground raw water loop eventually will include fire hydrants, isolation valves, and underground connections to feed the building sprinkler and standpipe systems.

A seismically qualified fire protection water tank and pumping system will be constructed to ensure that fire protection water is available at all times. The tank will serve as a backup water source for the fire protection system and will be supplied by the sanitary water system.

Installation of electrical services in support of HWVP site preparation will include the installation of the following equipment and materials: 13.8-kilovolt cable, 600-volt cable, ground systems, 13,800-480 volt transformers, 13.8-kilovolt switchgear, and telephone systems. The equipment and materials will be installed using the manufacturer's instructions along with contract drawings.

Additional information pertaining to the installation of mechanical site utilities in support of the HWVP is provided in the following HWVP detailed design drawings and specifications.

Drawings

H-2-117149	Mechanical Site Utilities Title Sheet	Rev. D
H-2-117150	Mechanical Site Utilities Drawing Index	Rev. D
H-2-117151	Civil Underground Utility Information Sheet	Rev. D
H-2-117152	Civil Underground Utility Plan	Rev. D
H-2-117153	Civil Underground Utility Plan	Rev. D
H-2-117154	Civil Underground Utility Plan	Rev. D
H-2-117155	Civil Underground Utility Plan	Rev. D
H-2-117156	Civil Underground Utility Plan	Rev. D
H-2-117157	Civil Underground Utility Plan	Rev. D
H-2-117158	Civil Underground Utility Plan	Rev. D
H-2-117159	Civil Underground Utility Plan	Rev. D
H-2-117160	Civil Underground Utility Plan	Rev. D

1	H-2-117164	Civil Underground Utilities Sections & Details	Rev. D
2	H-2-117166	Civil Sanitary Sewer Profiles	Rev. D
3	H-2-117167	Civil Sanitary Sewer Plan & Profile	Rev. D
4	H-2-117168	Civil Sanitary Sewer Sections and Details	Rev. D
5	H-2-117169	Civil Sanitary Sewer Sections and Details	Rev. D
6	H-2-117170	Civil Sanitary Sewer Sections and Details	Rev. D
7	H-2-117171	Civil Sanitary Sewer Sections and Details	Rev. D
8	H-2-117897	Architectural/HVAC General Notes & Schedules	Rev. D
9	H-2-117898	Architectural/HVAC RWX Pump House Plans, Elevations, Sections	Rev. D
10	H-2-117899	Architectural/HVAC Fire Water Pump House Plans, Elevations, Sections	Rev. D
11	H-2-117900	Architectural/HVAC RWX/SWX Manifold Shelter Plans, Elevations, Sections	Rev. D
12	H-2-117901	Architectural/HVAC Details	Rev. D
13	H-2-118006	Structural Notes and Typical Detail	Rev. D
14	H-2-118007	Structural FW, RWX & RWX/SWX Bldgs Foundation Plans	Rev. D
15	H-2-118008	Structural FW, RWX & RWX/SWX Bldgs Foundation Details	Rev. D
16	H-2-118009	Structural FW Pump House Steel Plan & Elevations	Rev. D
17	H-2-118010	Structural RWX Pump House Steel Plan & Elevations	Rev. D
18	H-2-118011	Structural RWX/SWX Manif. Shlt Details & Standard Steel Details	Rev. D
19	H-2-118012	Structural Standard Steel Details	Rev. D
20	H-2-118013	Structural TK-500-001 Fdn Details & Bldg Flange Box Details	Rev. D
21	H-2-118014	Structural FW, RWX, RWX/SWX Buildings Equipment Anchor Details	Rev. D
22	H-2-118015	Structural Walkway Concrete & Steel Details	Rev. D
23	H-2-118016	Structural Yard Pipe Supports Concrete & Steel Details	Rev. D
24	H-2-118017	Structural PS-50-1 Thru PS-50-8 Foundation Details	Rev. D
25	H-2-118018	Structural Yard Pipe Supports Details	Rev. D
26	H-2-118019	Structural RWX Pump House Details	Rev. D
27	H-2-120003	TK-500-001 Fire and Process Water Storage Tank	Rev. D
28	H-2-121200	Instrument Location Conduit Routing Plan Bldg 20	Rev. D
29	H-2-121201	Instrument Location Conduit Routing Plan Bldg 21 & 23	Rev. D
30	H-2-121380	Instrument Installation Support Details	Rev. D
31	H-2-121422	Instrument Installation Details	Rev. D
32	H-2-121423	Instrument Installation Details	Rev. D
33	H-2-121660	Instrument Panel Layout LP-500-007	Rev. D
34	H-2-122081	Electrical General Notes and Symbols	Rev. D

1	H-2-122082	Electrical Standard Assemblies and Details (Sheet 1 of 3)	Rev. D
2	H-2-122082	Electrical Standard Assemblies and Details (Sheet 2 of 3)	Rev. D
3	H-2-122082	Electrical Standard Assemblies and Details (Sheet 3 of 3)	Rev. D
4	H-2-122083	Electrical One-Line Diagram	Rev. D
5	H-2-122084	Electrical Underground Conduit and Grounding Plan	Rev. D
6	H-2-122085	Electrical Underground Conduit and Grounding Plan	Rev. D
7	H-2-122086	Electrical Underground Sections and Details	Rev. D
8	H-2-122088	Electrical Power, Grounding, and Heat Tracing Plan, Bldg 20	Rev. D
9	H-2-122089	Electrical Power, Grounding, and Heat Tracing Plan, Bldg 21 & 23	Rev. D
10	H-2-122091	Electrical Power & Lighting Plans, Bldgs 20 & 21	Rev. D
11	H-2-122093	Electrical Underground Cable Plan Construction Utilities	Rev. D
12	H-2-122098	Electrical Panel and Fixture Schedule Bldg 20, 21, & 23	Rev. D
13	H-2-122099	Electrical Elementary Diagrams	Rev. D
14	H-2-124020	General Notes, Key plan, Legend, Symbology, and Abbreviations	Rev. J
15	H-2-124022	Piping Standard Details (Sheet 1 of 2)	Rev. G
16	H-2-124022	Piping Standard Details (Sheet 2 of 2)	Rev. C
17	H-2-124026	Piping High Pressure Steam Line Aboveground Plan	Rev. G
18	H-2-124030	Piping RWX Pump House/Shelter Aboveground Plan	Rev. J
19	H-2-124033	Piping FW Pump House & Stor Tk Aboveground Plan	Rev. H
20	H-2-124034	Piping FW Pump House & Stor Tk Details	Rev. H
21		**Specification**	
22	B-595-C-A160	Mechanical Site Utilities	Rev. A
23			

4B-7 INSTALLATION OF ELECTRICAL UTILITIES (A170)

This construction package contains the drawings and technical requirements for the installation of electrical utilities in support of the HWVP. Specifically, the package addresses the following items:

- Operation and maintenance data for electrical equipment
- Excavation, backfill, and compaction for the installation of underground utilities
- Installation of cast-in-place concrete and reinforcing steel in support of electrical utilities
- Location of new and existing electrical systems
- Materials and equipment to be used in the installation of electrical systems
- Installation of electrical systems
- Conduit schedule for permanent electrical duct banks
- Acceptance testing and inspection procedures for electrical utilities.

Before the installation of HWVP electrical equipment, excavation, backfill and compaction will be performed, along with concrete installation. On completion of these preparatory activities, the following site electrical equipment will be installed: permanent site underground conduit duct bank system, including manholes and pullboxes, for power and communications; the site grounding system, including grounding wells and the main ground grid system; lighting for temporary and permanent parking lots and roadways; the construction power system, including rerouting of existing 13.8 kilovolt and 2,400 volt overhead distribution lines, 13.8 kilovolt switchgear, 13,800/480 volt transformers, 480/277 volt distribution switchboards and associated conduits, cable and materials; and a telephone interface cabinet for construction telephone service. The items will be installed per the contract drawings and specifications listed at the end of this section, in accordance with the National Electrical Code and the National Electrical Safety Code.

Following the installation of HWVP electrical equipment, the equipment will be tested and inspected to ensure that each component is in compliance with the contract drawings and specifications and in satisfactory condition to successfully perform its intended function. Operation and maintenance data will be provided for designated products, systems, and electrical equipment. The operation and maintenance data will include information required for the operation, maintenance, and repair of components, as well as instructions for emergency operations.

Additional information pertaining to the installation of electrical utilities is provided in the following HWVP detailed design drawings and specifications.

Drawings

H-2-122105	Electrical Site Utilities Title Sheet	Rev. C
H-2-122106	Electrical Site Utilities Drawing Index	Rev. C
H-2-122107	Electrical General Notes and Symbols	Rev. C
H-2-122108	Electrical Standard Assemblies and Details (Sheet 1 of 2)	Rev. C
H-2-122108	Electrical Standard Assemblies and Details (Sheet 2 of 2)	Rev. C
H-2-122109	Electrical Construction Power One-Line Diagram	Rev. C
H-2-122110	Electrical Site Demolition Plan	Rev. C
H-2-122111	Electrical Pole Line Relocation Plan	Rev. C
H-2-122112	Electrical Pole Line Details (Sheet 1 of 2)	Rev. C
H-2-122112	Electrical Pole Line Details (Sheet 2 of 2)	Rev. C
H-2-122113	Electrical Overall Grounding Plan	Rev. C
H-2-122114	Electrical Utilities Overall Distribution Plan	Rev. C
H-2-122118	Electrical Underground Utilities Site Plan	Rev. C
H-2-122119	Electrical Underground Utilities Site Plan	Rev. C
H-2-122120	Electrical Underground Utilities Site Plan	Rev. C
H-2-122122	Electrical Underground Sections & Details (Sheet 1 of 2)	Rev. C
H-2-122122	Electrical Underground Sections & Details (Sheet 2 of 2)	Rev. C
H-2-122123	Electrical Manholes Sections & Details	Rev. C
H-2-122126	Electrical Construction Utilities Overall Distribution Plan	Rev. C
H-2-122134	Electrical Construction Utilities Details (Sheet 1 of 3)	Rev. C
H-2-122134	Electrical Construction Utilities Details (Sheet 2 of 3)	Rev. C
H-2-122134	Electrical Construction Utilities Details (Sheet 3 of 3)	Rev. C
H-2-118060	Structural Notes and Typical Details	Rev. C
H-2-118061	Structural SG-32T-001 Switchgear Foundation Details	Rev. C
H-2-118062	Structural Electrical Equipment Foundation Details	Rev. C
H-2-118063	Structural Tel Console & Light Pole Foundation Details	Rev. C

Specification

B-595-C-A170	Electrical Site Utilities	Rev. A

4B-8 CONSTRUCTION OF RAILROADS (A180)

This construction package contains the drawings and technical requirements for the installation of new railroads in support of the HWVP. Specifically, the package addresses the following items:

- Location of new and existing railroads
- Materials and equipment to be used in railroad construction
- General trackwork
- Roadbed preparation
- Installation of new railroad track and associated components
- Railroad track inspection.

One railroad spur will be constructed in support of the HWVP. For the purposes of this permit application, it is assumed that the railroad will have the potential for transporting hazardous substances and dangerous waste. The spur will originate from a single tie-in point with the existing Hanford Site mainline. The spur will provide access to the railroad well in the Vitrification Building and the Receiving and Storage Building.

Railroad ties will be laid normal to the track center line and spaced approximately 56 centimeters (22 inches) from center to center. The ends of the ties on one side of the track will be laid parallel to the rail so that the centers of the ties will be on the approximate centerline of the track. Tie plates will be installed such that the rail will have full bearing on the plate, and no part of the plate shoulder will be under the base of the rail. The tie plates will have full bearing on the tie and will be set at right angles to the rail, the outside shoulder set against the base of the rail.

For rail installation, the base of the rail, surface of the tie and tie plate will be cleaned with a wire brush before laying. Rails will be laid, without bumping or striking, to a standard gauge of 1.2 meter 21.6 centimeters (4 feet 8½ inches) on tangents and on curves up to 6 degrees. For curves greater than 6 degrees, the gage will be widened 0.32 centimeter (1/8 inch) for each additional increment of 1 degree, to a maximum gage of 1.2 meter 22.9 centimeters (4 feet 9 inches). The track will be gaged normal to the rails at joints, centers, and quarters as spikes are being driven. Rail-expansion shims of wood, fiber, or metal will be used to provide for thermal expansion at bolted rail joints. After the installed track has been in service for 60 days under normal traffic, the grade and alignment will be checked and adjusted if necessary.

Additional information pertaining to the installation of the HWVP railroad spur is provided in the following HWVP detailed design drawings and specifications.

Drawings

H-2-117080	Civil Railroad Spurs Title Sheet	Rev. 1
H-2-117081	Civil Railroad Spurs Drawing Index	Rev. 1
H-2-117082	Civil Railroad Spurs Information Sheet	Rev. 1
H-2-117083	Civil Railroad Spurs "A" Track Plan and Profile	Rev. 1
H-2-117084	Civil "A" Track & Passing Track Plan and Profile	Rev. 1
H-2-117085	Civil "A" Track & Def. Spur Plan and Profile	Rev. 1
H-2-117086	Civil Railroad Spurs Sections and Details	Rev. 1
H-2-117087	Civil Railroad Spurs Sections and Details	Rev. 1
H-2-117088	Civil Railroad Spurs Sections and Details	Rev. 1
H-2-117089	Civil Existing Railroad Utility Crossing Plan	Rev. 0

Specification

B-595-C-A180	Railroad Spurs	Rev. 0

4B-9 UNIT SUBSTATION PROCUREMENT (P19)

Procurement package B-595-P-P19 will supply unit substations to provide temporary construction power to the HWVP. An outdoor 13.8 kV metal-enclosed switchgear assembly will be furnished, consisting of outdoor self-supporting bays with interrupter switches and power fuses, all completely factory-assembled and operationally checked in accordance with ANSI standards.

In addition, this procurement package will provide three-phase oil-immersed, self-cooled 13.8/.48 kV Wye transformers. The pad-mounted, compartmental-type transformers will consist of a transformer tank and separate high voltage and low voltage feeder terminating compartments. The transformer tanks and compartments will be assembled as integral units for mounting on a pad.

Operation and maintenance data will be provided for the switchgear assembly and transformers. The operation and maintenance data will include information required for the operation, maintenance, and repair of components, as well as instructions for emergency operations.

Enclosure 3

STINE GEBBIE
Secretary

AIR 91-607

STATE OF WASHINGTON
DEPARTMENT OF HEALTH
Airdustrial Center, Bldg. 5 • Mail Stop LE-13 • Olympia, Washington 98504

June 25, 1991

Ms. E. A. Bracken, Director
Environmental Restoration Division
Department of Energy
P. O. Box 550
Richland, Washington 99352

Dear Ms. Bracken:

In May, our respective staffs routinely met to discuss issues related to radioactive air emissions. In that meeting, we were asked about the need for a notification prior to the installation of utilities to support construction of the Hanford Waste Vitrification Plant (HWVP). It was our determination that, to follow the letter of the law, a notification would be required. However, we recognized that these utilities would have no impact on eventual required radionuclide control technology. Therefore, I accepted a verbal notification and gave verbal approval, with the condition that the Department of Energy and it's contractors accept all liability for these utilities possibly not being sufficient to support eventual control technology needs. The installation of any utilities or other equipment in this phased permitting approach must not preclude the installation of any radionuclide control equipment required at a later date. By giving that approval, we did not approve any equipment that in any way directly supports or impacts control technology requirements. A full Best Available Radionuclide Control Technology (BARCT) analysis is still required.

While I don't expect this to present any problems, I felt it was necessary to follow up the verbal approval with this letter, since the issue was discussed at the last HWVP Unit Manager's meeting.

Sincerely,

Allen W. Conklin, Head
Air Emissions & Defense Waste Section
Division of Radiation Protection

AWC/jr

CORRESPONDENCE DISTRIBUTION COVERSHEET

Author	Addressee	Correspondence No.
J. M. Ring, 376-8162	R. Poeton, EPA	Incoming:9105249 Reference:9156226D

Subject: HANFORD WASTE VITRIFICATION PLANT

INTERNAL DISTRIBUTION

Approval	Date	Name	Location	w/att
		Correspondence Control	A3-01	
		J. A. Bates	B2-19	
		R. J. Bliss (Level I)	B3-04	
		G. D. Carpenter	B2-16	
		L. P. Diediker	T1-30	
		C. K. DiSibio	B3-03	
		P. Felise	G6-16	
		C. J. Geier	B2-19	
		R. J. Landon	B2-19	
		J. H. LaRue	G6-16	
		R. E. Lerch (Assignee)	B2-35	
		P. J. Mackey	B3-15	
		R. W. Oldham	H4-57	
		S. M. Price	H4-57	
		J. M. Ring	H4-57	
		R. A. Smith	G6-02	
		EDMC	H4-22	
		JMR/File/LB	H4-57	